



UNIVERSITY OF  
AUCKLAND  
Waipapa Taumata Rau  
NEW ZEALAND

# Science

## Undergraduate Prospectus 2025

Biological Sciences | Chemical Sciences | Computer Science | Environment  
Exercise Sciences | Marine Science | Mathematics | Physics | Psychology | Statistics



**No.1**  
New Zealand  
University<sup>1</sup>



**Top 1%**  
Worldwide for  
Sustainability<sup>2</sup>



**Top 1%**  
worldwide for  
Impact ranking<sup>3</sup>



Ko Waipapa Taumata  
nei, e karanga nei ki t  
ki te kai i te mātaura  
Nau mau, haere mai,  
ki te whare whakairo

We are Waipapa Taumata Rau, we greet, and we call to the multitudes desire to be sustained by knowledge  
Welcome, come forth and tether your waka to the carved meeting house, Tāne-nui-a-rangi

a Rau mātou, e mihi  
e marea e hiahia ana  
nga

herea mai tōu waka  
o Tāne-nui-a-rangi

# Nau mai, haere mai

## Welcome to the Faculty of Science

Carl Sagan once said, "Science is a way of thinking much more than it is a body of knowledge." Studying Science at Waipapa Taumata Rau | University of Auckland will give you both disciplinary knowledge and that "way of thinking". Together these will allow you to pursue a career in your chosen discipline and provide you with the means to understand and address the challenges confronting society – and science – in the 21st century.

We have seen science take centre stage over the last 4 years in addressing COVID and the threats of climate change, but these are only two of many challenges where science is fundamentally helping society. At Waipapa Taumata Rau | University of Auckland we cover a comprehensive range of disciplines in the courses we offer – we're excited to offer two undergraduate Science programmes, in a diverse range of subjects.

Our three-year Bachelor of Science is a very flexible degree. It offers a great variety of majors and specialisations, as well as many options for double majors and conjoint degrees.

The four-year Bachelor of Advanced Science (Honours) is an undergraduate degree with a research focus. The programme will accelerate your preparation for postgraduate study. It will also equip you with the depth of knowledge and skills expected by today's employers.

Whatever discipline you choose and whatever courses you take, you will discover that science itself is continually evolving. It integrates and embraces topics from cells to society, quarks to computation, and Mātauranga Māori to the scientific method. Our approach is to provide you with the education to understand that evolution and allow you to enter not only today's science-based careers, but those that will come in the future.

At Waipapa Taumata Rau | University of Auckland you will benefit from studying at New Zealand's world-ranked university\*. Our staff include the largest group of top ranked, internationally renowned scientists in New Zealand. They will help you to build your knowledge at the cutting edge of science.

Your education will be enhanced through outstanding teaching facilities. These include the award-winning laboratories in our Science Centre on the City Campus as well as purpose built facilities in Newmarket for Exercise Sciences, The Goldwater Wine Science Centre on Waiheke Island and the purpose-built marine research campus overlooking Goat Island Reserve in Leigh. You will also be able to enjoy all the recreational and cultural opportunities that Auckland Tāmaki Makaurau has to offer.

Congratulations on your decision to study at Waipapa Taumata Rau | University of Auckland. I look forward to welcoming you to New Zealand's largest Faculty of Science.



**AHORANGI | PROFESSOR JOHN HOSKING**  
Manukura Pūtaiao | Dean of Science  
Waipapa Taumata Rau | University of Auckland

Cover attributions:

1. QS World University Rankings: Sustainability 2023
2. Impact Rankings 2023
3. \*[science.auckland.ac.nz/excellence](https://www.science.auckland.ac.nz/excellence)





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# Why study with us?

**No.1 university**  
in New Zealand



**and 68th**  
worldwide\*

**12** OF THE  
UNIVERSITY'S  
SCIENCE SUBJECTS

**Ranked 1st in  
New Zealand**

Biological Sciences

Chemistry

Computer Science and Information Systems

Earth and Marine Sciences

Environmental Sciences

Geography

Geology

Materials Sciences

Mathematics

Physics and Astronomy

Psychology

Statistics and Operational Research



Our undergraduate programmes  
are flexible, allowing you to  
**follow your interests  
and try different courses,**  
while keeping your options open

[auckland.ac.nz/science/excellence](http://auckland.ac.nz/science/excellence)



We're home to the  
**Science Scholars** and  
**Tuākana in Science**  
programmes



We have state-of-the-art  
facilities, including our  
**award-winning undergraduate  
Chemistry laboratory**

[science.auckland.ac.nz/sciencescholars](http://science.auckland.ac.nz/sciencescholars)  
[auckland.ac.nz/Tuākana-science](http://auckland.ac.nz/Tuākana-science)

\*\*[science.auckland.ac.nz/excellence](http://science.auckland.ac.nz/excellence)



# Hapori

## Our community

***Waiho i te toipoto, kua i te toiroa.***

*Let us keep close together, not far apart.*

***Nāu te rourou, nāku te rourou, ka ora ai te iwi.***

*With your food basket and my food basket the people will thrive.*

Science is a many-pointed star, and diversity among staff and students helps all of us to shine in the brightest ways possible. We value equity and diversity and proactively work to create more inclusive and socially-just environments where participation and success are available for all, regardless of background.



# What can you study?

Students start their study in Science with either the Bachelor of Science (BSc) or the Bachelor of Advanced Science (Honours) (BAdvSci(Hons)). Within both programmes our subjects can be divided into five areas: Biological, Health and Life Sciences; Chemical and Physical Sciences; Geography, Earth and Environmental Sciences; Human, Social and Behavioural Sciences; and Mathematical and Computational Sciences.

As well as acquiring the academic skills and techniques that are part of your chosen subject, you will also encounter new technologies and cutting-edge research methods.

## Bachelor of Science

It takes **3** years to complete a BSc



Can take **2** majors

Keep your options open

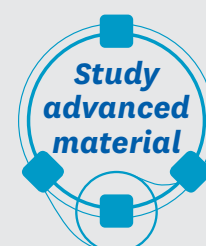
Do a student-led capstone course

## Bachelor of Advanced Science (Honours)

It takes **4** years to complete a BAdvSci(Hons)



Do research with an academic mentor



Can progress straight to a PhD

Study a joint programme

Transfer between programmes\*

\*Subject to faculty approval

## Glossary

Here are the definitions of some terms you will see and hear as you begin your journey to University:

**Capstone course:** a student-led project providing you with an opportunity to integrate your previous learning and apply it to a real-world problem in your subject area

**Conjoint:** Allows the completion of two undergraduate degrees (component degrees) in a shorter timeframe and with fewer points than would be possible through enrolling in them separately

**Core course:** a course that is integral to your programme, and is therefore compulsory

**Major:** a subject area that makes up about a third of the courses in your BSc (All majors can be taken as part of a double major, and all are available as part of a conjoint degree.)

**Module:** a group of three, related skills-based courses that you can choose to include in your programme

**Pathway:** a group of courses within a major or specialisation that are focused on a particular area of study

**Specialisation:** a subject area that makes up more than half of the courses in your degree



## Science subjects quick reference table

Science subject	Available as a major in the BSc	Available as a specialisation in the BSc	Available as a specialisation in the BAdvSci(Hons)	Available in a conjoint
<b>Biological, Health and Life Sciences (page 12)</b>				
Biological Sciences	✓			✓
Biomedical Science		✓		
Computational Biology			✓	✓
Exercise Sciences	✓			✓
Food Science and Nutrition		✓		
Marine Science	✓		✓	✓
Pharmacology	✓			✓
Physiology	✓			✓
<b>Chemical and Physical Sciences (page 16)</b>				
Applied Physics			✓	✓
Chemistry	✓		✓	✓
Food Science and Nutrition		✓		
Environmental Physics	✓			✓
Green Chemical Science		✓	✓	
Medicinal Chemistry		✓		
Physics	✓		✓	✓
<b>Geography, Earth and Environmental Sciences (page 18)</b>				
Earth Sciences	✓			✓
Environmental Physics	✓			✓
Environmental Science	✓			✓
Geographic Information Science	✓			✓
Geography	✓			✓
Marine Science	✓		✓	✓
<b>Human, Social and Behavioural Sciences (page 20)</b>				
Anthropological Science	✓			✓
Exercise Sciences	✓			✓
Geography	✓			✓
Psychology	✓		✓	✓
<b>Mathematical and Computational Sciences (page 22)</b>				
Computer Science	✓		✓	✓
Computational Biology			✓	✓
Data Science		✓		
Geographic Information Science	✓			✓
Information and Technology Management	✓			✓
Logic and Computation	✓			✓
Mathematics	✓		✓	✓
Quantitative Economics		✓		
Statistics	✓		✓	✓

## General Education

General Education is a feature of our degree programmes that is unique in New Zealand. It enables you to gain an appreciation of disciplines outside your main field of study and mix with students from across the University. It also exposes you to cross-disciplinary research. Most students enrolled in a bachelors degree are required to pass one General Education course as part of their programme.

[auckland.ac.nz/generaleducation](http://auckland.ac.nz/generaleducation)

## Waipapa Taumata Rau course

All first-year students will take a Waipapa Taumata Rau course. In the Faculty of Science, your Waipapa Taumata Rau course will focus on sustainability, science and society, and the history and philosophy of science. This course will help you to understand different knowledge systems, how a place is relevant to science, and the significance of Te Tiriti o Waitangi for scientists. You will develop foundational critical and ethical thinking, communication, and

collaborative skills essential for success in your undergraduate study..

Visit our webpages for more information about Waipapa Taumata Rau courses and other curriculum developments.

[auckland.ac.nz/evolving-your-education](http://auckland.ac.nz/evolving-your-education)

Read Gemma's  
full story at:  
[auckland.ac.nz/science/  
gemma-cunnington](http://auckland.ac.nz/science/gemma-cunnington)



*"I have always been surrounded by the ocean. I developed such a strong connection to our Moana from a young age, and I've always known there was no other career path I'd rather take. A BSc in Marine Science is just the first step of my journey with the sea."*

*"A significant factor to my experience has been the lecturers. Every lecturer I've spoken with is more than happy to help and try their best to further my knowledge and understanding."*

*"I graduated with a BSc in 2022 and enrolled in a Master of Science (MSc) in Marine Science."*

*"I was inspired to pursue the postgraduate qualification because I wanted to get a taste of the research process."*

*"After getting advice from multiple supervisors, I came to the conclusion that doing a masters would be my best option."*

## Gemma Cunnington

BSc in Marine Science and MSc in Marine Science.





# Ngā take akoako – Pūtaiao

## Why study science?

The Bachelor of Science (BSc) programme allows you to incorporate different areas of interest and expertise, and its flexible structure means you don't have to make absolute decisions early on.



### BSc subjects

#### Biological, Health and Life Sciences

- Biological Sciences
- Biomedical Science
- Exercise Sciences
- Food Science and Nutrition
- Marine Science
- Pharmacology
- Physiology

#### Chemical and Physical Sciences

- Chemistry
- Food Science and Nutrition
- Environmental Physics
- Green Chemical Science
- Medicinal Chemistry
- Physics

#### Geography, Earth and Environmental Sciences

- Earth Sciences
- Environmental Physics
- Environmental Science
- Geographic Information Science
- Geography
- Marine Science

#### Human, Social and Behavioural Sciences

- Anthropological Science
- Exercise Sciences
- Geography
- Psychology

#### Mathematical and Computational Sciences

- Computer Science
- Data Science
- Geographic Information Science
- Information and Technology Management
- Logic and Computation
- Mathematics
- Quantitative Economics
- Statistics

### Quick facts

**Full-time:** 3 years  
(Part-time study options are available.)

**Points:** 360  
(24 x 15-point courses)

**Taught at:** City Campus

**Subject areas:** Choose from the large variety on pages 14–26

**Application closing dates:**

8 December 2024 (Late applications will be considered if places are available.)

Summer School begins Monday 6 January 2025

Semester One begins Monday 3 March 2025

Semester Two begins Monday 21 July 2025

**Conjoint combinations:**

Explore possible conjoint options that compliment this degree.

[auckland.ac.nz/conjoints-by-faculty](http://auckland.ac.nz/conjoints-by-faculty)

### What you'll be studying

**In your first year:**

- You should enrol in eight courses in up to three subject areas to discover your strengths and interests
- You will probably take four courses in Semester One and four courses in Semester Two

**In your second year and beyond:**

- You will complete a range of more advanced courses relating to your main subject
- You will also complete courses from other areas within the Science schedules to add breadth to your knowledge

**In your final year:**

- You will complete a capstone course and complete your major

*A flexible degree incorporating different areas of interest*

**Find out more**  
[auckland.ac.nz/bsc](http://auckland.ac.nz/bsc)

**Find out more about our majors, specialisations and pathways on pages 14–26.**



# Ngā take akoako – Pūtaiao Whatutoto

## Why study Advanced Science?

If you have a clear idea about the direction you want to take in science, and you're ready to undertake a four-year programme, then the Bachelor of Advanced Science (Honours) could be for you.

### Quick facts

**Full-time:** 4 years

(Part-time study options available.)

**Points:** 480

(32 x 15-point courses)

**Taught at:** City Campus

**Subject areas:** Choose from the wide variety on pages 14–26

**Application closing dates:**

8 December 2024 (Late applications will be considered if places are available.)

Summer School begins Monday 6 January 2025

Semester One begins Monday 3 March 2025

Semester Two begins Monday 21 July 2025

[science.auckland.ac.nz/badvsci-hons](https://science.auckland.ac.nz/badvsci-hons)

**Conjoint combinations:**

Explore possible conjoint options that compliment this degree.

[auckland.ac.nz/conjoints-by-faculty](https://auckland.ac.nz/conjoints-by-faculty)



### BAdvSci(Hons)

We designed this programme with budding scientists in mind. You'll emerge from your four-year degree with advanced disciplinary knowledge and research skills relevant to your chosen specialisation. Depending on your grades, you may qualify to enter directly into a PhD programme. If you don't pursue postgraduate studies, you will be well placed to seek employment in your sector of interest.

**BAdvSci(Hons)**  
for students who  
want to pursue  
postgraduate  
research

**Find out more**

[auckland.ac.nz/science/badvsci-hons](https://auckland.ac.nz/science/badvsci-hons)

### What you'll be studying

**In your first year:**

- You will probably take four courses in Semester One and four courses in Semester Two
- You should include courses relating to your chosen specialisation, as well as a core course and other courses in the Science schedules

**In your second year and beyond:**

- You will complete a range of more advanced courses relating to your main subject
- You will also complete courses from other areas within the Science schedules to add breadth to your knowledge

**In your final year:**

- You will enrol in a range of postgraduate courses related to your specialisation
- You will complete your own research project related to your specialisation, in collaboration with one of our researchers
- Depending on how well you do across your courses, you may be eligible for direct entry into a PhD

### BAdvSci(Hons) specialisations

- Applied Physics
- Chemistry
- Computational Biology
- Computer Science
- Green Chemical Science
- Marine Science
- Mathematics
- Physics
- Psychology
- Statistics

**Find out more about our specialisations on pages 14–26.**



*“I decided to pursue a Bachelor of Science majoring in Statistics alongside my Commerce degree in order to augment my business knowledge with the skills required to deliver strong data-driven solutions. Statistics is a rapidly growing field that is widely applicable across many different career paths. As the amount of data and information produced rises year by year, the need for experts who can transform these into value and insights will continue to grow.*”

*“I greatly appreciated the fantastic lecturers and staff within the Statistics department. There were plenty of places to ask any questions that I had during my studies – like chats with lecturers, or spending time in the the Statistics help room. This always made me feel supported in my learning.*”

*“My advice is to make the most of your time in university, as there are many great opportunities and experiences available for you. Don’t forget to make mistakes and to learn from them. And be sure to spend plenty of time with your friends and family!”*”

Read Miguel’s  
full story at:  
[auckland.ac.nz/science/  
miguel-antonio](https://auckland.ac.nz/science/miguel-antonio)



## Miguel Antonio

Graduate: Bachelor of Science and Bachelor of Commerce. Conjoint in Statistics, Economics and Finance.



# Science subjects

For all information and conditions, please refer to *The University of Auckland Calendar*.

## Biological Sciences

Biology is the science of the 21st century. Think about everything you see or read – about epidemics, cancer, climate change, about new species in old lands, old cures for new diseases, about how we rely on the bacteria that live on and in us, and the possibility of life on other worlds. To understand all this, you need to understand how life works, and biology is the study of life.

At Te Kura Mātauranga Koiora, the School of Biological Sciences, we teach and conduct research across all scales of the living world, from molecules to ecosystems. Modern biology is also interdisciplinary, and embraces other STEM disciplines, including chemistry, mathematics, statistics and computer science. For this reason, you will receive a world-class education at the School of Biological Sciences. You will also have the opportunity to pursue your own research in areas that you are passionate about, beyond the traditional boundaries of classical biology.

As a Biological Sciences student, you'll take common core courses in each year of study. Beyond these compulsory courses you can choose to keep it general, or else follow one or more pathways in specialist fields of biology that deliver a series of focused and complementary courses:

- **Biochemistry and Cell Biology:** Explore the structure and function of life's molecules and the complex interactions they make within cells to drive all of life on Earth.
- **Biotechnology:** Understand the commercial development of new knowledge and discovery in the biosciences.
- **Ecology:** Learn about the factors that control the distribution, diversity and abundance of terrestrial organisms. Explore conservation management in a social and cultural context, while you gain key ecological field, lab and statistical skills.
- **Evolution:** Study the origins and diversification of life over billions of years. You will explore the data and methods we use to study the evolution of everything from viruses to humans, DNA to dinosaurs, mass radiations to mass extinctions, population genetics to phylogenomics, the origin of new genes and the origin of major adaptations like limbs, flight, sex, immune systems, and language.
- **Genetics:** Understand the molecular basis of heredity and the role of genes in disease.



- **Marine Biology:** The ocean covers 70% of our planet and hosts a vast array of biodiversity from the coasts to the darkest depths. You will gain an understanding of the complex ecosystems, diversity, physiology and evolution of ocean life through field work and lab practicals. With the ocean under considerable pressure, you will learn about resilience in ocean ecosystems in applied and conservation contexts.
- **Microbiology:** You'll learn how knowledge of our 'invisible' microbial world has been explored. You will use diverse molecular, microscopy- and culture-based methods. This pathway will leave you in no doubt of the importance of understanding microbial life. This knowledge can help maintain global human and environmental health while capitalising on extraordinary biotechnological opportunities offered by our microbial planet.
- **Plant Biology:** View plants from a molecular, cellular, physiological and biotechnological perspective

- **Zoology:** Explore the animal world, learning about the evolution of anatomy, physiology and behaviour in both the laboratory and in the field.

As part of your degree you can take the Biological Sciences capstone course, BIOSCI 399 Biology: The Science of the 21st Century, which will allow you to debate contemporary issues in biology, and explore how these issues are interpreted from a cultural, political and economic perspective.

Complementary majors include Anthropological Science, Chemistry, Computer Science, Earth Sciences, Environmental Science, Exercise Sciences, Geography, Psychology and Statistics.

[auckland.ac.nz/science/biological-sciences](http://auckland.ac.nz/science/biological-sciences)



- ✓ BSc major
- ✓ Available in a conjoint



# Biomedical Science

If you have a passion for understanding the scientific basis of health and disease in humans and animals, then Biomedical Science could be the specialisation for you.

This challenging and immensely rewarding specialisation will deliver rigorous scientific training in a range of disciplines, offering unique insights into important and rapidly developing areas of modern research.

The specialisation is highly prescriptive, and is one of only two University of Auckland pathways through which you can be selected for Medicine (MBChB) at the end of your first year of study. The first year of the Biomedical Science specialisation includes compulsory courses that all students must take. However, as you progress through your second and third years, you can choose to keep it general or opt for one of the following pathways to focus your studies:

- **Anatomical Imaging Science:** Learn how detailed anatomy can be made accessible for teaching, medical imaging, surgical planning and biomedical applications. You'll study the foundations of anatomical dissection, various approaches to medical imaging, and image analysis.
- **Cancer Biology and Therapeutics:** Gain an in-depth understanding of the molecular and genetic basis of cancers; study therapeutic strategies for treating the disease and learn about the pharmacological principles of drug discovery.
- **Cardiovascular Biology:** Gain an in-depth understanding of the structure, function and regulation of the cardiovascular system in order to investigate the origins of various diseases that are prevalent in our community.
- **Cellular and Molecular Biomedicine:** Explore the foundations for our current understanding of many diseases, which allows the design and development of effective diagnosis and treatment.
- **Genetics:** Genetics holds tremendous promise for understanding, diagnosing and treating disease. This pathway will give you the foundations for understanding how our genes underlie health and wellbeing.
- **Infection and Immunity:** Explore the complex interplay between microbes and their hosts and learn the essential principles of infectious disease, vaccination and immunological disorders.
- **Neuroscience:** We're rapidly increasing our understanding of the brain and related structures in health and disease. You'll study the developmental origins of the nervous system, its structure and function, neurological diseases and cutting-edge approaches to improve outcomes from the treatment of brain disease.



- **Nutrition and Metabolism:** Nutrition is a key determinant of health. This pathway will give you the foundations for understanding the role of nutrients in metabolic regulation and the influence of the genome on nutrition.
- **Reproduction and Development:** Reproduction is key to life. In this pathway you'll discover that humans are not as good at reproduction as you may think, and you'll study the amazing technologies that have been developed to enhance reproductive success.

As part of your specialisation you can do the Biomedical Science capstone course. This will allow you to debate contemporary issues and use your scientific reasoning to challenge misunderstandings and misrepresentation in biomedical research – all while you hone your skills as a scientific communicator.

[auckland.ac.nz/science/biomedical-science](http://auckland.ac.nz/science/biomedical-science)



✓ *BSc specialisation*

# Computational Biology

Computational Biology equips biologists and life scientists for research that now routinely requires computation and complex data analysis.

As a Computational Biology student you'll be able to choose from a range of complementary courses in Biological Sciences, Chemistry, Computer Science, Mathematics and Statistics. In your fourth year, you'll complete independent research under the guidance of an academic mentor. This research will give you the opportunity to integrate and apply your knowledge and skills while thinking critically about what you've learnt.

This specialisation will offer you fundamental knowledge across Biology, Computer Science and Statistics. You will develop Computational Biology, Genomics and Bioinformatics skills that are required by employers in academia and industry, where analysis of life science data is increasingly important.

[auckland.ac.nz/science/computer-science](http://auckland.ac.nz/science/computer-science)



✓ *BAdvSci(Hons) Specialisation*

✓ *Available in a conjoint*



## Exercise Sciences

In Exercise Sciences you'll study the physiological, psychological, biomechanical and neural influences on human performance in exercise, sport and the workplace. The programme focuses on both health and disease. This practical and diverse major will offer you the skills you need to work with people in movement science, health, wellness, rehabilitation and sport science.

Laboratory work plays an important role in the Exercise Sciences major and is based around the analysis and evaluation of data collected from people engaged in physical activity. The Department of Exercise Sciences has research facilities to support studies. These include the Exercise Physiology, Biomechanics and Movement Neuroscience Laboratories, and the Health and Rehabilitation Clinic. As part of your major you can do the Exercise Sciences capstone course, EXERSCI 399 Applying Exercise Science, where you will use your theoretical knowledge and practical skills in a supervised research project.

Complementary majors include Biological Sciences, Chemistry, Computer Science, Physics, Physiology, Psychology and Statistics.

[auckland.ac.nz/science/exercise-sciences](http://auckland.ac.nz/science/exercise-sciences)



- ✓ BSc major
- ✓ Available in a conjoint

## Food Science and Nutrition

See *Chemical and Physical Sciences*, page 18.

## Marine Science

See *Geography, Earth and Environmental Sciences*, page 21.

## Pharmacology

Pharmacology is the study of chemicals that are biologically active and can be used to modify, cure or prevent illness. In practice, this requires a detailed understanding of both how the body functions and the problems that can occur. By identifying cellular and chemical abnormalities of the disease state, it's possible to design molecules to fix them.

As a Pharmacology student you'll study how drugs work at the molecular level in living organisms. You'll also explore factors that influence safe and effective drug use in various populations. You'll take courses that focus on the interaction of drugs with target molecules, the biochemical processes involved in achieving clinically relevant drug concentrations, and the ways in which diseases can be treated in a variety of organ systems.

As part of your Pharmacology major you can do a capstone course, PHARMCOL 399, where you work both individually and in small groups to apply the knowledge you've gained and demonstrate mastery of fundamental methods in Pharmacology. You'll investigate the processes of drug development within the ethical and legal framework for using experimental animals and human subjects in New Zealand.

Complementary majors include Biological Sciences, Chemistry, Physics, Physiology, Psychology and Statistics.

[auckland.ac.nz/science/pharmacology](http://auckland.ac.nz/science/pharmacology)



- ✓ BSc major
- ✓ Available in a conjoint

## Physiology

Physiology is the study of how living organisms function, from the cellular to the whole-body level. Understanding how organisms work helps us to understand what goes wrong in disease, and provides a scientific basis for its treatment. Physiology is highly quantitative and has close links with biochemistry, molecular biology, mathematical modelling and pharmacology, as well as zoology and neuroscience.

We offer world-class, research-inspired teaching. We connect fundamental biology with biomedical and bioengineering fields in many topics, including endocrinology and cardiovascular, respiratory, renal, vision, hearing, neurological, fetal, neonatal, cellular and molecular science.

As a Physiology student, you'll take courses in Biological Sciences, Chemistry, Medical Science, Physics and Statistics to give you a solid quantitative grounding and to encourage critical thinking, science innovation and translation.

As part of your Physiology major you can do a capstone course, PHYSIOL 399, where you'll demonstrate your knowledge and skills through the design of a scientific research project. You'll explore the role of science and scientists in society, ethics, science communication, and commitment to Māori and Pacific health advancement.

You'll graduate with expertise and knowledge that will allow you to take up diverse opportunities in research, clinical medicine or industry.

Complementary majors include Biological Sciences, Chemistry, Exercise Sciences, Mathematics, Pharmacology, Physics, Psychology and Statistics.

[auckland.ac.nz/science/physiology](http://auckland.ac.nz/science/physiology)



- ✓ BSc major
- ✓ Available in a conjoint



*“Growing up I was always very active in playing sports and dancing ballet. My love for the human body came from ballet. It taught me which muscles are used in a movement, and how to improve a movement by understanding how the body works.”*

*“I was driven to carry on learning about the human body, so I enrolled in a Bachelor of Exercise Sciences, hoping to apply it to both exercise and the treatment of people living with chronic conditions and disease.”*

*“I chose the University of Auckland because it has a great reputation, and Auckland was only a few hours away from where I grew up in Rotorua. The programme also offers a lot of practical experience with the benefit of working with patients in our clinic.”*

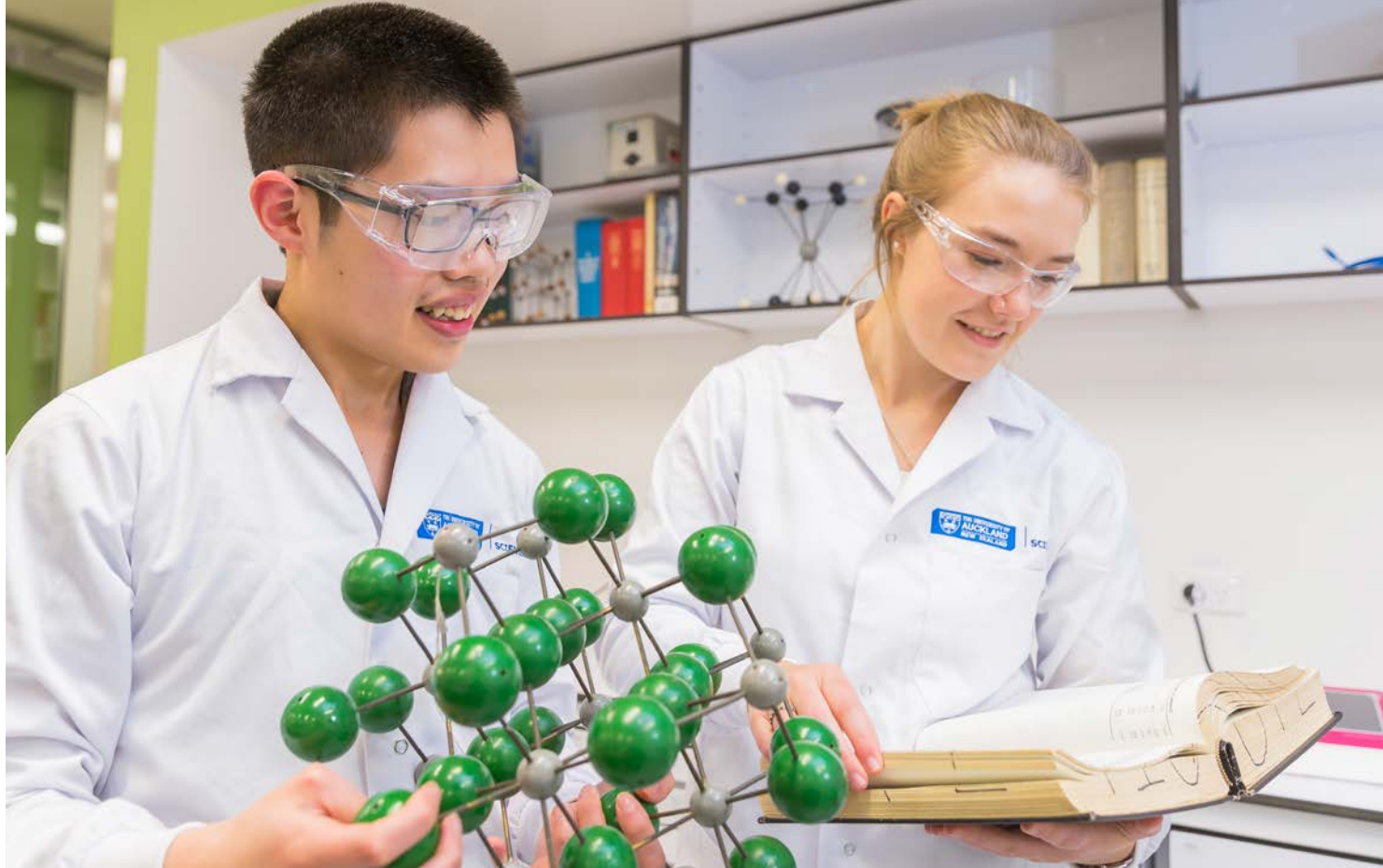
Read Sasha's full story at:  
[auckland.ac.nz/science/sasha-douglas](https://auckland.ac.nz/science/sasha-douglas)



## Sasha Douglas

Postgraduate Diploma in Clinical Exercise Physiology.





## Applied Physics

Applied Physics is designed for students with a strong interest in the application of physical theories to solve problems and a desire to undertake research.

Students can choose from four sub-disciplines: Medical Physics and Imaging Technology, Nano and Materials Physics, Photonics, and Space Systems. Alternatively, they could select their own combination of a diverse range of courses.

The programme has a strong applied focus with a 45-point fourth-year research project, typically to be carried out in collaboration with a local-industry or medical partner. The many strong relationships our researchers have already established with NZ high-tech companies will allow students to choose from a wide range of potential industry projects.

The degree is designed to position graduates to enter New Zealand's high-tech industries. It also allows them to proceed to graduate study.

[auckland.ac.nz/science/applied-physics](http://auckland.ac.nz/science/applied-physics)



- ✓ *BAdvSci(Hons) Specialisation*
- ✓ *Available in a conjoint*

## Chemistry

Chemistry is the science of atoms and molecules. It deals with molecular structure and synthesis, chemical reactions and theoretical models that explain molecular behaviour. Chemistry is a central science – it aims to understand the structure and properties of

the world around us. It underpins fields as diverse as biology, geology, environmental science, medicine and engineering. The practice of Chemistry leads to new substances and better processing reactions. It also enhances our understanding of materials, biological processing and the environment. All core courses have a hands-on laboratory component, and your Chemistry studies will develop your ability to think logically, analyse complex systems, communicate clearly, and be creative, numerate and computer literate.

If you study Chemistry as a BSc major, you can do CHEM 399, the Chemistry capstone course, where you will work individually and in small groups to showcase the skills you've gained throughout your major, delivering your findings in both written and oral form.

Complementary BSc majors include Anthropological Science, Biological Sciences, Earth Sciences, Environmental Science, Geography, Mathematics and Statistics.

The BAdvSci(Hons) specialisation focuses on chemistry as a multi-disciplinary science. It includes an introduction to recent research, interdisciplinary aspects of chemical science research and pathways to commercial applications of chemistry through research. The BAdvSci(Hons) in Chemistry will teach you about the interplay of chemistry with other scientific disciplines and also with the commercial world, both of which are increasingly relevant in today's society.

For BAdvSci(Hons) students there are compulsory core courses, but you can explore additional areas of your choice once you're in your third year. In the final year of your degree, you'll also complete two advanced courses, which will prepare you to engage in research.

This experience with research will provide you with a strong foundation for postgraduate study in Chemistry.

[auckland.ac.nz/science/chemistry](http://auckland.ac.nz/science/chemistry)



- ✓ *BSc major or BAdvSci(Hons) Specialisation*
- ✓ *Available in a conjoint*

## Food Science and Nutrition

This challenging and prescriptive specialisation offers two distinct pathways.

If you pursue the **Food Science pathway** you'll study all aspects of manufacturing, processing and production in food-related industries, including nutrigenomics, emerging technologies, food safety and product development.

If you pursue the **Nutrition pathway** you'll study human nutrition, the maintenance of good health and the wellbeing of populations. These topics require you to consider the environmental, social, economic and cultural aspects of eating behaviour and how they impact health.

As part of your Food Science and Nutrition specialisation you can do FOODSCI 399, the Food Science and Nutrition capstone course, where you will work with other students to identify and develop a new food product or system in response to a nutritional issue.

[auckland.ac.nz/science/food-and-nutrition](http://auckland.ac.nz/science/food-and-nutrition)



- ✓ *BSc specialisation*

# Environmental Physics

Environmental Physics is the study of the Earth and environment, using physics and mathematics. It spans from the deep interior of the Earth to its surface, oceans and atmosphere. Environmental Physics aims to explain the physical phenomena we observe today in order to discover their past history and model their future behaviour.

As an Environmental Physics student you'll learn how to apply your knowledge of mathematics and physics to the study of global processes. You'll explore plate tectonics, natural hazards, natural resources, the oceans, atmosphere and climate.

As part of your major you can do the Environmental Physics capstone course, ENVPHYS 399, where you'll investigate and report on key geophysical phenomena, using experimental, observational, computational and numerical processes.

Complementary majors include Computer Science, Earth Sciences, Environmental Science, Geography, Mathematics, Physics and Statistics.

[auckland.ac.nz/science/environmental-physics](http://auckland.ac.nz/science/environmental-physics)



- ✓ BSc major
- ✓ Available in a conjoint

# Green Chemical Science

Green Chemical Science involves the use of chemical principles, science and technology to advance society in ways that are sustainable and safe for the environment – and to tackle global issues that impact on sustainability. The approaches include interdisciplinary studies in catalysis, synthesis, toxicology, analytical methodology, materials science, and biochemistry.

As a Green Chemical Science student you'll have an interdisciplinary and highly practical learning experience. You'll study topics such as pollution elimination, clean water production, production of materials from renewable feedstocks, mitigation of global warming, and the development of renewable energy technologies.

If you choose to study Green Chemical Science as a BSc specialisation, you can do CHEM 397, where you will work individually and in small groups to showcase the knowledge you have learned throughout your specialisation.

If you study Green Chemical Science as a BAdvSci(Hons) specialisation, you will acquire advanced disciplinary knowledge and research skills that will prepare you to engage in research in the fourth and final year of your degree.

There's an increasing number of science jobs available in the sustainability arena. Studying



Green Chemical Science will equip you with the necessary skills and knowledge to take advantage of these career opportunities, and to contribute to society in a meaningful and informed way.

[auckland.ac.nz/science/green-chemical-science](http://auckland.ac.nz/science/green-chemical-science)



- ✓ BSc specialisation or BAdvSci(Hons) Specialisation

# Medicinal Chemistry

Medicinal Chemistry encompasses the design, biochemical effects, regulatory and ethical aspects of drugs for the treatment of disease. It's one of the most rapidly developing areas of chemistry.

As a Medicinal Chemistry student you'll gain a strong foundation in biological and chemical techniques that are relevant to the pharmaceutical world. You'll also have the chance to learn about the synthesis, reactivity and analysis of organic compounds, and you'll gain valuable insight into the pharmacological, regulatory and ethical aspects of these bioactive compounds.

As part of your Medicinal Chemistry specialisation you can do CHEM 398, where you will work individually and in small groups to showcase the knowledge of modern drug-discovery and development that you have learned throughout your specialisation.

[auckland.ac.nz/science/medicinal-chemistry](http://auckland.ac.nz/science/medicinal-chemistry)



- ✓ BSc specialisation

# Physics

Physics is a fundamental and versatile science. By understanding the principles of physics and the laws of nature, it is possible to gain a deep insight into the world around you, especially as a lot of modern science and technology is underpinned

by physics. A degree in Physics will give you an understanding of the nature of matter as well as training in experimental methods and the mathematical analysis of physical processes.

As a Physics student you'll find out how to undertake rigorous investigations into matter, the concepts of energy and force, and the laws of nature. You'll have the chance to apply your learning to areas such as acoustics, astronomy, electronics (including medical imaging, fibre optics and telecommunications), lasers, meteorology, nuclear physics and quantum physics.

If you study Physics as a BSc major you can choose to keep it general, or follow one of two Physics pathways (Photonics or Medical Physics and Imaging Technology), in order to focus your studies further.

- **Photonics:** is the science and technology of light. Students on this pathway will gain specialist training in photonic and electronic engineering, advanced physics and mathematical electronics.
- **Medical Physics and Imaging Technology:** is the science of biomedical optics, biophotonics and medical physics. Students on this pathway will gain specialist training in the use of optical and laser technologies for biomedical studies, with applications in sensing, medicine and modelling.

As part of your BSc major you can do a Physics capstone course, PHYSICS 399, where you'll employ core methodologies (experimental, observational, computational and numerical) to investigate some aspect of a key physical phenomenon. You'll relate your findings to contemporary research in the field, and also consider wider societal aspects and issues.

If you study Physics as a BAdvSci(Hons) specialisation, you'll take core courses in Physics, Mathematics and Computer Science to sharpen your disciplinary focus. In your fourth year, you'll complete an independent research project and dissertation.

[auckland.ac.nz/science/physics](http://auckland.ac.nz/science/physics)



- ✓ BSc major or BAdvSci(Hons) Specialisation
- ✓ Available in a conjoint





## Earth Sciences

The Earth Sciences major explores the processes that have shaped Earth, from its deepest interior to its surface, and into neighbouring space. It investigates the complexity and interactions of Earth's systems. It addresses the impact of natural processes on society, and vice versa.

As part of your Earth Sciences major you can do the Earth Sciences capstone course, EARTHSCI 399, where you will carry out research or practice in Earth Sciences using the skills and knowledge you've gained throughout your studies.

Complementary majors include Anthropological Science, Biological Sciences, Chemistry, Environmental Science, Physics and Statistics.

[auckland.ac.nz/science/earth-sciences](http://auckland.ac.nz/science/earth-sciences)



- ✓ BSc major
- ✓ Available in a conjoint

## Environmental Science

Environmental Science aims to understand the environment, using input from a wide variety of science disciplines. These include biology, chemistry, geography, earth sciences, physics and engineering, in conjunction with social sciences like economics and human geography.

Environmental Science focuses on the environmental effects of human activity and is dedicated to protecting and restoring natural heritage, minimising human impact and reversing environmental degradation.

In your Environmental Science major you will study a range of topics, including conservation project management; policy and planning for sustainable development; computer modelling of environmental problems; and human interactions with environmental systems and processes. As part of your major you can do the Environmental Science capstone course, ENVSCI 399, where you will undertake an independent research project.

Complementary subjects include Biological Sciences, Chemistry, Earth Sciences, Geography, Mathematics, Physics and Statistics.

[auckland.ac.nz/science/environmental-science](http://auckland.ac.nz/science/environmental-science)



- ✓ BSc major
- ✓ Available in a conjoint

## Geographic Information Science

If you've ever dropped a pin into Google maps, or found the shortest route using the public transport network, then you've engaged with Geographic Information Science (GIScience).

This major is the study of the data structures and techniques used to capture, process and visualise geographic information.

It is estimated that 80 percent of data collected has some spatial component, whether it's a city name, a street address or even a precise set of co-ordinates. We'll teach you how to use data collected by satellites and drones, government-sourced data, and social media platforms to examine a wide range of social and natural processes.

As a Geographic Information Science student, you'll use a range of methods to answer questions like, "What is the relationship between urban inequality and disease?" and "What are the effects of sea level rise on coastal areas?" You'll also have the chance to use modelling techniques to analyse data intensive contexts, such as the flow of resources across a public transportation system.

As part of your major you can do the GIScience capstone course, GISCI 399, where you'll design and carry out an independent research project under the guidance of an academic mentor.

Complementary majors include Computer Science, Data Science, Earth Science, Environmental Science, Geography, Marine Science and Statistics.

[auckland.ac.nz/science/geographic-information](http://auckland.ac.nz/science/geographic-information)



- ✓ BSc major
- ✓ Available in a conjoint



## Geography

Geographers ask questions about society and the environment. They study the natural processes of the physical environment, as well as human activities and their consequences. Some geographers specialise in coastal, glacial or fluvial processes and landforms, climatology, biogeography, hydrology or environmental change. Others study regional economics, population change, the problems of rural or urban areas, and the experience of particular groups in society.

As a Geography student you'll study weather, wave, tide and river monitoring and analysis; demographic and economic analysis; the interpretation of physical and cultural landscapes; mapping, cartography and geo-visualisation; analysis of soils and sediments; and many more topics. Fieldwork is an important part of studying Geography.

As part of your major you can do the Geography capstone course, GEOG 399, where you'll undertake an independent, field-based research project and communicate your findings.

Complementary majors include Biological Sciences, Chemistry, Computer Science, Earth Sciences, Environmental Science, Psychology and Statistics.

[auckland.ac.nz/science/geography](http://auckland.ac.nz/science/geography)



- ✓ BSc major
- ✓ Available in a conjoint

## Environmental Physics

See *Chemical and Physical Sciences*, page 19.



## Marine Science

New Zealand occupies a strategic position in the Southwest Pacific Ocean. One challenge we face as a country is the ongoing development and sustainable management of this vast marine realm. Understanding and managing the oceans requires a multi-disciplinary approach. Scientists need core skills in one or more disciplines and the ability to research collaboratively. Marine Science is available in the BSc and the BAdvSci(Hons).

If you study Marine Science as a BSc major, you'll take a variety of courses from Biological Sciences, Earth Sciences, Environmental Science, Geography and Statistics. In your final year you can do a capstone course, MARINE 399, where you'll demonstrate your learning by working on a student-led project.

Complementary BSc majors include Biological Sciences, Chemistry, Earth Sciences, Environmental Science, Geography, Mathematics and Statistics.

If you study Marine Science as a BAdvSci(Hons) specialisation, you'll take a range of core and advanced courses to explore current scientific and management issues. In-depth case studies will demonstrate the multi-disciplinary nature of the work required to solve significant marine science problems. You'll also take courses to develop quantitative skills in data exploration, modelling and statistics, as well as advanced practical research skills courses. In your fourth year you'll complete an independent research project. This will prepare you to continue on to doctoral study if you attain the required grades. Alternatively you could enter the workforce.

[auckland.ac.nz/science/marine-science](http://auckland.ac.nz/science/marine-science)



- ✓ BSc major or BAdvSci(Hons) Specialisation
- ✓ Available in a conjoint



## Anthropological Science

Anthropological Science bridges the natural sciences, human sciences and humanities, allowing you to develop a deep awareness of cultural and biological diversity. This major offers you the chance to hone scientific skills and understand new technologies that will support research in bio-anthropology and archaeology.

As part of your major you can do the Anthropological Science capstone course, ANTHRO 399, which will encourage you to make connections between your academic learning and the professional world. You'll conduct individual and group-based research with significance to a range of stakeholders, including Heritage New Zealand, Auckland Council, Auckland Museum, and iwi and hapū.

Complementary majors include Biological Sciences, Chemistry, Earth Sciences, Environmental Science, Geography, Psychology and Statistics.

[auckland.ac.nz/science/anthropological-science](http://auckland.ac.nz/science/anthropological-science)



- ✓ BSc major
- ✓ Available in a conjoint

## Exercise Sciences

See *Biological, Health and Life Sciences*, page 16.



## Geography

See *Geography, Earth and Environmental Sciences*, page 21.

## Psychology

Psychology is the scientific study of how people behave, learn, think, feel and respond. It investigates important questions such as what motivates human beings, how do their priorities change over the course of their lives, what constitutes wellbeing, and how can people learn to live better together.

As a Psychology student you'll study a variety of approaches to the discipline, ranging from the quantitative to the qualitative and personalised, and from theoretical to practical. Practical work in the laboratory or field is an essential part of this subject. Psychology is available in the BSc and the BAdvSci(Hons).

If you study Psychology as a BSc major, you can do a capstone course in your final year, PSYCH 399 Communicating Psychology. You'll work independently and in small groups to communicate psychological ideas and research, using a range of media, including grant proposals, podcasts and print.

Complementary BSc majors include Anthropological Science, Biological Sciences, Chemistry, Computer Science, Exercise Sciences, Pharmacology, Physics, Physiology and Statistics.

If you study Psychology as a BAdvSci(Hons) specialisation, you'll take courses from a range of disciplines, including social and applied psychology, behavioural psychology, clinical psychology, cognitive neuroscience and cultural psychology. In your second year you'll have the chance to specialise further as you take advanced courses that will prepare you for research at postgraduate level. In your fourth year you'll complete a practical research project under the direction of an academic supervisor, which will prepare you for entry into doctoral study if you attain the required grades. Alternatively you could enter the workforce.

[auckland.ac.nz/science/psychology](http://auckland.ac.nz/science/psychology)



- ✓ BSc major or BAdvSci(Hons) Specialisation
- ✓ Available in a conjoint







***“I completed a BSc in Physics and Geophysics in 2021, and went on to study Physics with Honours. I felt like studying physics was a way to quantitatively understand the world around me. It also was one of the few majors that could eventually lead to studying astrophysics topics.***

*“Environmental Physics attracted me because I was interested in the environmental impact of human activity and how the geology of the surface of earth tells us a story about its past. Additionally, New Zealand is a geologically young and active country, so I hoped I would get to go on a lot of field trips and see a lot of these natural phenomena in person.*

*“Physics provided me with a solid foundation for learning about the earth, atmosphere, and oceans. I also like that the broad nature of what I study doesn’t restrict me to one industry or job – I feel like I have gained a lot of transferable skills during my study (which aren’t industry specific).*

*“Coming to university was definitely a big change for me after working full time for six years in the Royal New Zealand Airforce. Ultimately, I think I gained a lot more than Physics knowledge from my time here – I learned a lot about myself, my weaknesses, my strengths, and even my academic interests (which I thought I already knew when I started). I felt that if I reached out to my lecturers with a genuine issue, that they would help me and they would understand. This really took a lot of the stress out for me over the last couple of (unpredictable) years.”*

Read Mahima’s  
full story at:  
[auckland.ac.nz/science/  
mahima-seth](https://auckland.ac.nz/science/mahima-seth)



## **Mahima Seth**

Graduate: BSc in Physics and Env. Physics,  
and BSc (Hons) in Physics in Environmental  
Physics.



## Computer Science

Computing technology permeates our lives, and with that comes the demand for specialists to imagine, develop and maintain that technology. Computers are indispensable in fields such as education, medicine, commerce and engineering – as well as leisure. We can't imagine what we would do without them, and the innovations just keep on coming. Computer Science is growing in complexity as technology itself becomes more complex, and as computers (and computational processes) become an intrinsic component in a growing number of academic and professional spheres.

If you take Computer Science as a BSc major, you can study topics such as artificial intelligence, cyber security, data science, networks and the internet, software engineering, algorithms, complexity theory, computer vision, graphics, human-computer interaction, logic, programming languages and robotics.

As part of your BSc major you can do COMPSCI 399, the Computer Science capstone course, where you'll work in small teams on a substantial project from conception through to production. This major will allow you to develop logical thinking, problem solving, abstract thought and analysis – all skills that are highly valued by employers.

Complementary BSc majors include Information and Technology Management, Mathematics, Physics, Psychology and Statistics.

The BAdvSci(Hons) Computer Science specialisation is designed to accommodate the growing need for both deeper and broader understanding of computers. It will appeal to you if you're interested in building knowledge or capacity, or if you're keen to work in interdisciplinary areas. The specialisation has a particular focus on innovation and developing new knowledge through research activities, leading to advanced knowledge in the discipline. You'll have a broad introduction to recent research in computer science, which will prepare you to undertake your own postgraduate study.

If you study Computer Science as a BAdvSci(Hons) specialisation, you'll take six compulsory courses that cover the core areas of software development, computer systems and theory of computing. As you move into your second and third year you'll explore one of these areas in more depth, and you'll take two advanced research courses that will prepare you to complete a research component in your final year.

[auckland.ac.nz/science/computer-science](http://auckland.ac.nz/science/computer-science)



- ✓ BSc major or BAdvSci(Hons) Specialisation
- ✓ Available in a conjoint





As a Logic and Computation student you'll have the chance to gain sound practical knowledge of programming and logical analysis, and to develop the conceptual, analytical and communication skills needed for a deeper theoretical understanding of the discipline. You'll also study the philosophical and linguistic issues at the root of the science of computation. As part of your major you can do LOGICOMP 399, the Logic and Computation capstone course.

You can apply your learning in an individual or small-group research project, based around the role of logic and computation in modern society.

Complementary majors include Computer Science, Information and Technology Management, Mathematics, Physics and Psychology.

[auckland.ac.nz/science/logic-and-computation](http://auckland.ac.nz/science/logic-and-computation)



- ✓ BSc major
- ✓ Available in a conjoint

## Mathematics

The subject of Mathematics has many faces: it can be challenging, beautiful, powerful, fascinating, and even mysterious to some people. But, above all, it is useful. Mathematics is a central science, and it interacts with many other disciplines – wherever problems need to be solved, Mathematics has a role to play. As a Mathematics student you'll study a range of concepts and theories, as well as analytical, computational and modelling tools that you can apply to areas as diverse as the biological sciences, information and physical sciences, economics, engineering and finance.

If you study Mathematics as a BSc major, you can choose to keep it general or follow one of two Mathematics pathways in order to focus your studies further:

- **Applied Mathematics:** The study of mathematical methods that can be used to understand problems in a wide range of sciences, engineering, finance, and other industries
- **Pure Mathematics:** The study of abstract concepts, and the development of analytical, logical, creative thinking, and problem-solving skills

As part of your BSc major you can do the Mathematics capstone course, MATHS 399, where you'll work with other students to explore the role of mathematicians in society and culture. Your project will give you the chance to develop your skills in communication, critical thinking, teaching and creative problem solving. Complementary BSc majors include Computer Science, Data Science, Environmental Physics, Physics and Statistics.

## Data Science

Data Science is a rapidly growing field with an unmet demand for suitably qualified graduates. Big data is everywhere, but to extract information we require the ability to manage – and analyse – the data.

A Data Science specialisation will provide initial preparation for students wishing to pursue a career in this area. It brings together courses from Computer Science, Statistics and Mathematics to provide a strong, coherent background in the field.

You'll learn how to process data and manage databases; bring together data from disparate sources; extract information and value from data; conduct statistical and predictive modelling; and develop effective critical analysis, communication and reflective skills. As part of your specialisation you can do the Data Science capstone course, DATASCI 399 Creating Value from Data, where you'll work on a group-based project to showcase the skills you've gained.

[auckland.ac.nz/science/data-science](http://auckland.ac.nz/science/data-science)



- ✓ BSc specialisation

## Computational Biology

See *Biological, Health and Life Sciences*, page 15.

## Geographic Information Science

See *Geography, Earth and Environmental Sciences*, page 20.

## Information and Technology Management

Information and Technology Management is a business-focused major that will appeal to you if you're interested in combining computing skills with current business practice.

You'll study the applications of technology and information management in the commercial sector, focusing on the analysis and design of information systems for business. As an Information and Technology Management student you'll take courses that allow you to understand information management from systems, data-handling and process perspectives. As part of your major you'll complete a capstone course where you'll work in a small group to analyse a problem, devise a solution, produce a system and present your work.

Complementary majors include Computer Science, Mathematics and Statistics.

[auckland.ac.nz/science/info-and-tech-management](http://auckland.ac.nz/science/info-and-tech-management)



- ✓ BSc major
- ✓ Available in a conjoint

## Logic and Computation

Do you have a flexible mind capable of creative, speculative thought, precise calculation and practical problem solving? If you're interested in computer science, linguistics and philosophy, Logic and Computation could be the ideal choice for you. This major focuses on the development of computer languages, and it has strong applications in the areas of artificial intelligence, speech recognition, and associated software development.



If you study Mathematics as a BAdvSci(Hons) specialisation, you'll take courses across the spectrum – from algebra, combinatorics, complex analysis and differential equations to mathematical modelling, functional analysis and operator theory, numerical analysis and topology. In your final year you'll complete an independent research project under the guidance of an academic mentor. This will help to prepare you for further postgraduate study or to enter the workforce.

Mathematical skills are in great demand by employers – the BAdvSci(Hons) specialisation will equip you with advanced knowledge in pure and applied mathematics, as well as the computational and research skills required to make great contributions in science, technology or commerce.

[auckland.ac.nz/science/mathematics](http://auckland.ac.nz/science/mathematics)



- ✓ BSc major or BAdvSci(Hons) Specialisation
- ✓ Available in a conjoint

## Quantitative Economics

The Quantitative Economics specialisation aims to produce graduates with strong analytical and mathematical skills for advanced economic

theory and its application. The challenges of modern society demand a greater focus on the relationship between the economy, human society and the environment. As a result, industry will require transdisciplinary graduates with specialised skillsets. The University of Auckland is currently the only university in the country offering a programme of this kind. Completing this programme will equip you with capabilities specific to disciplinary knowledge and practice, critical thinking, solution seeking, communication and engagement, independence and integrity, and social and environmental responsibilities. You will learn to apply mathematical knowledge to concrete situations in Economics, specify and estimate regression equations to support data analysis applicable to real-world issues and demonstrate the ability to synthesize information to effectively coordinate decisions across a variety of domains. Graduates of this programme will be well prepared to pursue a future in a broad range of sectors, including government and policymaking, consulting and business or a pathway to post graduate study in Economics or Mathematics. You can also complete the MATHS 399 capstone course.

[auckland.ac.nz/science/quantitative-economics](http://auckland.ac.nz/science/quantitative-economics)



- ✓ BSc specialisation

## Statistics

We live in an information age. Computers allow us to collect and store information in quantities that previously would never have been dreamt of. However, data is useless until people can make sense of it. If you're interested in looking critically at numerical information without being misled, then Statistics could be the ideal subject for you.

Statistics is the human side of the computer revolution – statisticians take raw, undigested data, often in very large sets, and make sense of it to solve problems and provide valid information in almost every area of life. As a Statistics student you'll study how to ask the right questions, how to design ways to collect and analyse data, and how to present information in meaningful ways.

If you study Statistics as a BSc major, you can choose to keep it general, or follow one of two Statistics pathways in order to focus your studies further:

- **Applied statistics:** This is for students who are primarily interested in the practice of statistics.
- **Statistics and probability:** This is for students who are interested in both the application of statistics and the theory underlying statistics and probability, including stochastic modelling. If you intend to progress to postgraduate study, you should take this pathway.

In the final year of your BSc you can do the Statistics capstone course, STATS 399 Statistics in Action, where you'll integrate your statistical knowledge and collaborate with other students to solve a statistical problem. Statistics complements all other BSc majors.

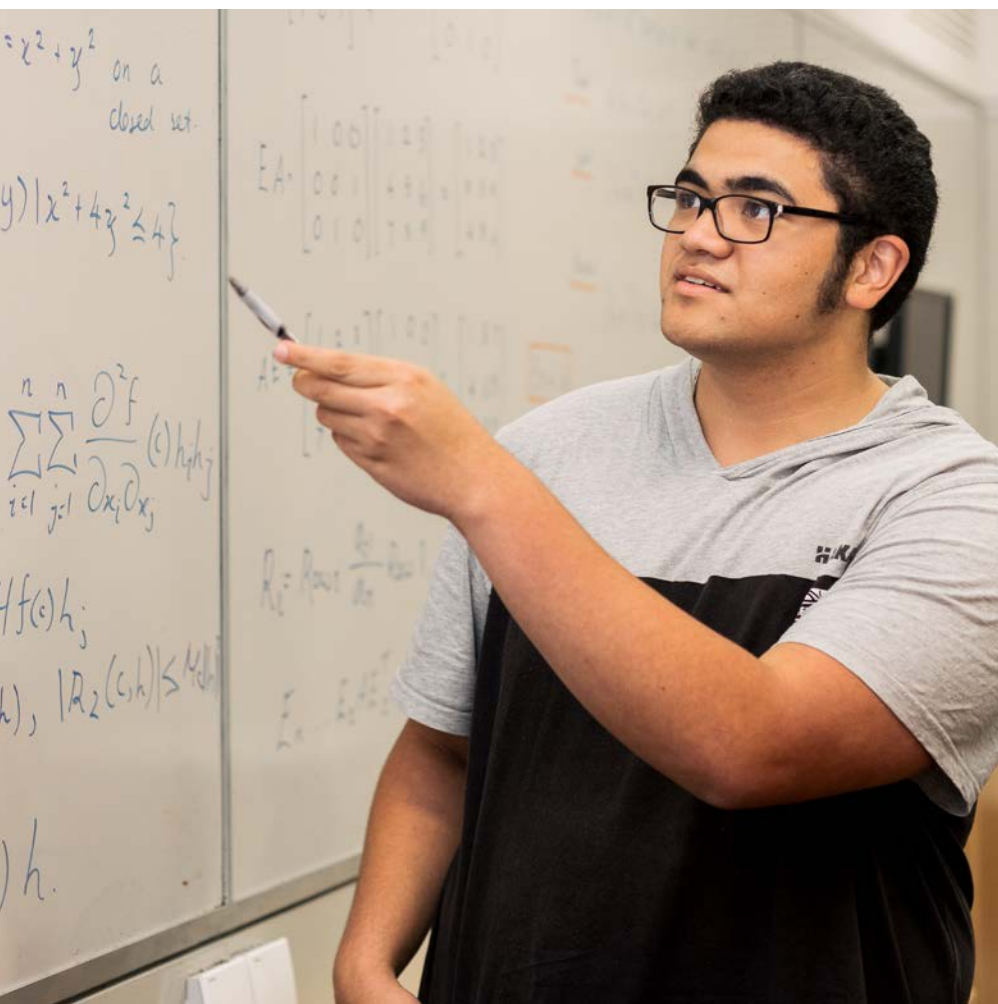
If you study Statistics as a BAdvSci(Hons) specialisation, you'll take courses in mathematical statistics and probability theory, as well as applied statistics and data analysis. You will also support your specialisation with advanced courses in Mathematics.

In your fourth year you'll undertake an independent research project, which will equip you with the advanced research methods you'll need for doctoral study. You'll gain deep knowledge and practical investigation skills. These will reinforce your abilities in the art and science of extracting meaning from seemingly incomprehensible data.

[auckland.ac.nz/science/statistics](http://auckland.ac.nz/science/statistics)



- ✓ BSc major or BAdvSci(Hons) Specialisation
- ✓ Available in a conjoint







# Modules

Modules complement your subjects and enable you to add extra value to your undergraduate Science programme.

## What are modules?

A module is a grouping of three skills-based courses on a particular theme. Modules are optional. You can take one or two modules in addition to your main Science subjects. Completed modules will appear on your academic transcript.

## Why should I take a module?

Modules are designed to complement the skills you'll develop in your other Science subjects, and add extra value to your Bachelor of Science or Bachelor of Advanced Science (Honours). Modules allow you to develop and diversify your skill set for future employment.

## How do I take a module?

It's simple – all you need to do is enrol in your first course and then come in for a chat with an adviser at your local Student Hub.

Science students can also choose one module offered by other faculties at the University.

**Email:** [studentinfo@auckland.ac.nz](mailto:studentinfo@auckland.ac.nz)  
**Phone:**  
**Auckland:** (09) 923 5025  
**Outside Auckland:** 0800 61 62 63  
**International:** +64 9 373 7513  
[auckland.ac.nz/studenthubs](http://auckland.ac.nz/studenthubs)  
[auckland.ac.nz/science/modules](http://auckland.ac.nz/science/modules)

## Modules available

### Data Analysis

Gain a practical understanding of applied data and statistical analysis.

### Exercising the Body and Mind

Learn about the science behind exercise and fitness.

### Innovation and Entrepreneurship

Understand the process of identifying and creating opportunities for new approaches, products and enterprises to deliver creative solutions and meet user needs.

### Quantitative Critical Thinking and Communication

Develop the ability to interpret and evaluate reports, and to construct sound arguments.

### Science in Society

Acquire critical skills and understanding in communication, innovation and engagement in order to help address societal issues.

### Science Scholars\*

Take part in one-on-one mentoring and research activities; participate in dedicated lectures, seminars and activities.

### Software Development

Gain the skills required to plan, design and write computer programs using standard computer programming languages.

### Spatial Data Analysis

Acquire basic skills in spatial analysis, spatial data structures and the representation of spatial information.

### Studies in Food and Health

Gain scientific insights into our daily encounters with food and health in the home, the market and the media.

### Sustainability

Develop your understanding of sustainability to make an informed and positive response to this significant social challenge.

\*This module is only available to students who are part of the Science Scholars programme. See Science Scholars Programme, page 30.



***“One thing I loved about my time studying Mathematics and Statistics is the Tuākana programme, which supports Māori and Pacific students. To me, Tuākana is about having a place to feel you belong in the system, which is valuable for those students who are shy and feel embarrassed to ask questions. And that includes a lot more people than many might realise!”***

*“The Tuākana room was my second home; lecturers and tutors were there every day just to answer questions and to hang out. I remember waking up every morning throughout my whole degree, looking forward to going to the Tuākana space, and having that relationship with the tutors made me fearless when it came to learning – it helped me take more control of my study. I succeeded because I realised that fear is the only thing that stops you from growing.*

*“I also use my passion for Mathematics to teach kids in the community – I run a free maths class that has more than 200 kids in it currently. Some of them are now top in mathematics in their school, just from one year of study every Saturday. I’m proud to say the class has really opened the door for kids from all over Auckland, and kids all the way from Wellington, Hamilton, Christchurch, Australia, Tonga, Samoa, Fiji, China, India, the Philippines, and other countries.*

*“Ultimately I would do anything to help motivate students who are going through what I went through. Overcoming the fear of asking questions is the first step to discovering how to fly. Overcome that fear and you will find out how strong you really are, and how far you can go!”*

## **Halaevalu Tu’ipulotu**

**Graduate: Bachelor of Science in  
Mathematics and Statistics.**

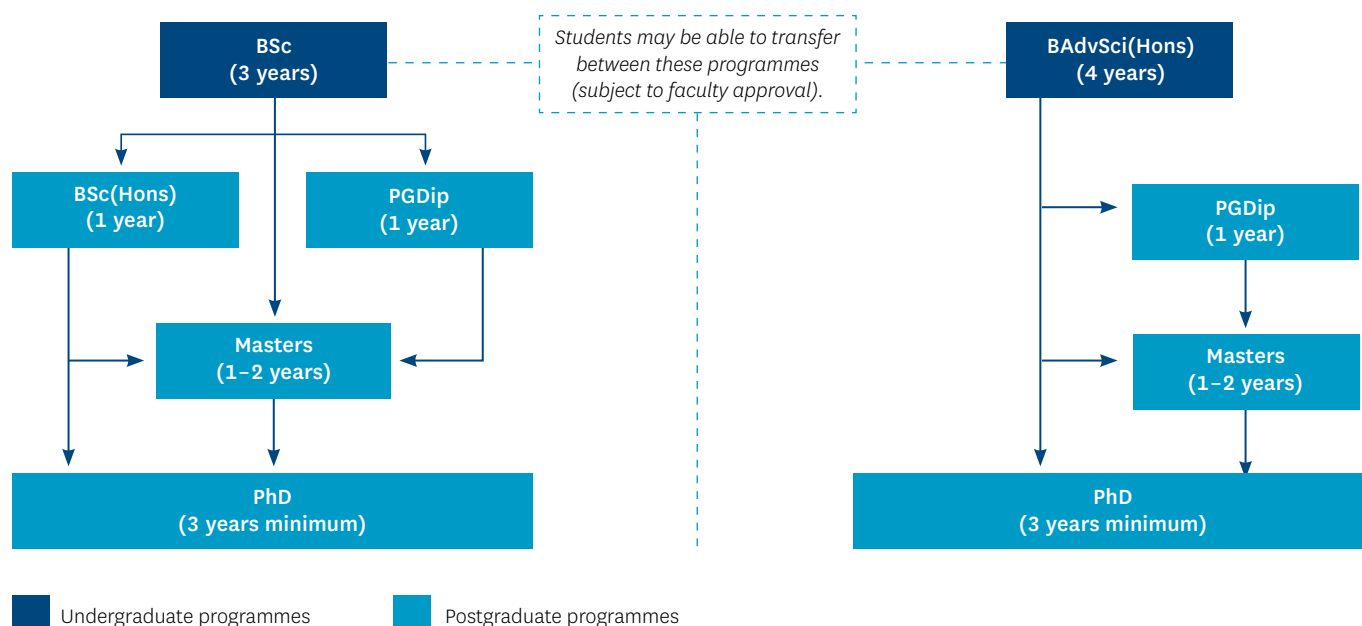


**Read Halaevalu’s  
full story at:  
[auckland.ac.nz/science/  
halaevalu-tuipulotu](https://auckland.ac.nz/science/halaevalu-tuipulotu)**



# Our postgraduate programmes

## Postgraduate pathways



## Entry requirements

To gain entry to a degree programme at the University of Auckland, you must meet admission, programme and undergraduate English language requirements. This table shows the rank score, subjects and other entry requirements that will guarantee you admission to your programme. If you achieve the University Entrance (UE) standard but do not achieve a rank score that will guarantee selection into the programme you wish to pursue, your application will be given individual consideration, if places are available.

Undergraduate programme admission requirements for school leavers who have achieved University Entrance.			
Programme	NCEA (Level 3)	Cambridge International	IB
Bachelor of Science (BSc)			
– Biomedical Science	280	310	33
– Food Science and Nutrition	200	200	28
– All other majors/specialisations	165	170	26
Bachelor of Advanced Science (Honours) (BAdvSci(Hons))	260	310	31

Find out more about the conjoint options available to compliment your degree  
[auckland.ac.nz/conjoints-by-faculty](http://auckland.ac.nz/conjoints-by-faculty)

## Scholarships

Many scholarship opportunities are available to support your academic journey as an undergraduate student at Waipapa Taumata Rau | University of Auckland. Explore the options available for scholarships offered by the University, faculty, school, or department that best fit your situation. Our scholarships could potentially fund your education and help you achieve your academic goals.



Go online for information about the full range of first-year scholarships.  
[auckland.ac.nz/schoolleaverscholarships/sci](http://auckland.ac.nz/schoolleaverscholarships/sci)





## Life on campus

### Science Scholars programme

Completed in conjunction with the Bachelor of Science (BSc) or Bachelor of Advanced Science (BAdvSci(Hons)), the Science Scholars programme combines one-on-one mentoring with cross-disciplinary interaction and research opportunities that aren't usually available in undergraduate study.

To support and extend each other, you'll join a select group of Science students from across the faculty, who work closely with the University of Auckland's leading scientists and teachers.

Entry to the Science Scholars Programme is competitive, and we are interested in both your potential for academic success, and your engagement with activities outside the classroom.



*Student guide at Orientation.*

The programme offers selected students:

- The opportunity to be involved in special research projects
- An academic mentor for the duration of their degree
- Academic and programme advice
- Personalised invitations to seminars
- The opportunity to meet distinguished visitors
- Enrichment activities that tap into the best research-informed teaching and learning methods

Students will also be part of a vibrant, scientifically focused community, with many chances to socialise as a cohort.

[auckland.ac.nz/science/science-scholars](http://auckland.ac.nz/science/science-scholars)



## Tuākana Science Programme

Tuākana is a culturally safe educational community open to all Māori and Pacific students and staff, with spaces to hang out, study, and connect with other like-minded students. The programme aims to support and enhance the student experience while assisting you in your academic goals and career development with opportunities at every stage of your university journey, from topic-specific tutorials, one-on-one sessions, and exam preparation, to scholarships, research opportunities, tutoring, jobs, and career mentoring for senior students.

[auckland.ac.nz/science/tuakana-programme](https://auckland.ac.nz/science/tuakana-programme)



Tuākana Science Programme

## Science Ambassadors Programme

In the Science Ambassadors Programme, senior ambassador leaders co-ordinate student ambassadors to support new students as they settle into university life. As a first-year science student, you'll meet with an ambassador on Orientation Day, who will answer your questions, check in with you, and offer support and advice to help you excel in your new journey.

[auckland.ac.nz/scienceambassadors](https://auckland.ac.nz/scienceambassadors)

## Science Students' Association

The Science Students' Association (SciSA) is a student-run organisation that all Faculty of Science students are invited to join. In addition to offering various social events throughout the year, the association runs academic workshops, research showcases, study groups and offers other opportunities for students to put learning into practice. Together with the faculty, this group actively creates an environment in which students' many interests are nurtured and their wellbeing is supported.

Get in touch with the Science Students' Association via their Facebook page.

[facebook.com/ScienceStudentsAssociation](https://facebook.com/ScienceStudentsAssociation)



Science Ambassador Programme and SciSA representatives at Open Day in 2023

scientists by promoting science education and career opportunities to high school students.

[facebook.com/auws.uoa](https://facebook.com/auws.uoa)

## Auckland University Women in Science

Auckland University Women in Science (AUWS) was established in 2021 with the objective of fostering connections including empowering and supporting women in the Faculty of Science. AUWS organises a diverse array of events, encompassing both academic and social aspects, designed to connect women in the field. The club is geared towards inspiring the next generation of

## Rainbow Science Network

The Rainbow Science Network's vision is for an inclusive culture that acknowledges and respects all sexual orientations and gender identities and values the contribution we collectively make to life in the Faculty of Science.

Connect with the Rainbow Science Network via their webpage.

[auckland.ac.nz/science/working-groups](https://auckland.ac.nz/science/working-groups)

## Student clubs and societies

Being involved in clubs gives you the opportunity to meet other Science students, gain new skills and develop your social and professional networks.

There is a wide range of Science clubs you can join, from the Archaeological Society (ArchSoc) to the Developers Society (DEVS).

[auckland.ac.nz/science/clubs-and-societies](https://auckland.ac.nz/science/clubs-and-societies)



*“Physics cuts right to the heart of the laws of nature, and so I was always captivated by it as a subject. My passion for studying physics and explaining it to others made a career in academia as a physicist my dream job, so I came to the University of Auckland to make that dream a reality.”*

*“Overall, the best parts of my time at university were all the opportunities I had to grow outside of my coursework. Optional academic programmes like Summer Research Scholarships and Science Scholars developed me as a researcher in ways assignments and exams couldn’t. These programmes also involved mentorship from established academics who gave me insights into my career path.*

*Joining different clubs also helped me develop skills beyond those directly related to Physics – through clubs I have been able to do consultancy for charities at ThinkPod, creative academic writing at UoA Scientific magazine. I’ve also helped build the student community in the Science Students’ Association. All these experiences have been enriching for me and made my time studying Physics at the University of Auckland an absolute joy.”*

## **Caleb Todd**

**Graduate: Physics and Mathematics,  
BSc (Hons) in Physics**

Read Caleb’s  
full story at:  
[auckland.ac.nz/science/  
caleb-todd](http://auckland.ac.nz/science/caleb-todd)



# Dates to remember

## Mānawa Mai Info Evening and Open Day 2024

**Info Evening: Tuesday 25 June**  
**Open Day: Saturday 24 August**

Open Day is all about experiencing our University. So haramai! Meet our awesome staff and students, get hands on with our interactive activities and experience lectures. Open Day is a lot like student life itself. It's also a chance to take a look at all your study options.

There's a lot on, enjoy loads of entertainment, scout out our City and Grafton campuses – and of course, see what your future might look like.

Nau mai, haere mai! Register at:  
[auckland.ac.nz/science/manawa-mai](http://auckland.ac.nz/science/manawa-mai)

## Orientation | Wiki Whakataki

Orientation takes place the week before lectures start each semester. Faculty Orientation Day is designed to help you feel more connected with your faculty of study, while allowing you to meet staff and students who you will come across during your time at the University. You will be buddied up with your UniGuide who will be there to answer any questions you may have about university life.

### Semester One 2025 Orientation welcome

**Faculty Orientation: week beginning 24 February 2025**  
**(Semester One 2025 begins 3 March.)**

### Semester Two 2025 Orientation welcome

**Faculty Orientation: week beginning 14 July 2025**  
**(Semester Two 2025 begins 21 July.)**

For more information see [auckland.ac.nz/orientation](http://auckland.ac.nz/orientation)

Find out more about International Orientation Week.  
[auckland.ac.nz/internationalorientation](http://auckland.ac.nz/internationalorientation)

For more information call **0800 61 62 63** or email [studentinfo@auckland.ac.nz](mailto:studentinfo@auckland.ac.nz)



### Disclaimer

Although every reasonable effort is made to ensure accuracy, the information in this document is provided only as a general guide for students and is subject to alteration. All students enrolling at the University of Auckland must consult its official document, the current Calendar of the University of Auckland, to ensure that they are aware of and comply with all regulations, requirements and policies.

## Closing dates for applications for admission to Science programmes in 2025

### 1 December 2024

This is the deadline for new students to submit their Application for Admission if their 2024 programme includes Summer Start courses.

### 8 December 2024

This is the deadline for new students to submit their Application for Admission if their 2024 programme includes Semester One and Semester Two courses only.

If you are a new student, only one Application for Admission is required. This form is due on either 1 December or 8 December, depending on whether you want to take Summer Start courses as well.

Applications received after these dates will be considered if places are available.

### Academic year 2025\*

#### Kura Raumati | Summer School and Summer Start – 2025

Lectures begin	Monday 6 January
Auckland Anniversary Day	Monday 27 January
Waitangi Day holiday	Thursday 6 February
Lectures end	Friday 14 February
Study break/exams	Study break: Saturday 15 February Exams: Monday 17 - Wednesday 19 February
Summer School ends	Wednesday 19 February

#### Wehenga Tahī | Semester One 2025

Orientation Week	Monday 24 - Friday 28 February
Semester One begins	Monday 3 March
Mid-semester/ Easter break	Friday 14 - Friday 25 April
ANZAC Day	Friday 25 April
Lectures end	Friday 6 June
King's Birthday	Monday 2 June
Study break/exams	Study break: Monday 9 - Wednesday 11 June Exams: Thursday 12 - Monday 30 June
Semester One ends	Monday 30 June
Inter-semester break	Tuesday 1 July - Friday 18 July

#### Wehenga Rua | Semester Two 2025

Orientation Week	Monday 14 - Friday 18 July
Semester Two begins	Monday 21 July
Mid-semester break	Monday 1 September - Friday 12 September
Lectures end	Friday 24 October
Labour Day	Monday 27 October
Study break/exams	Study break: Monday 28 - Wednesday 29 October Exams: Thursday 30 October - Monday 17 November
Semester Two ends	Monday 11 November

\* Start/finish dates vary for some programmes.



*“I’ve always had a passion for the environment; growing up with hobbies that constantly had me in the outdoors made me want to learn about and explore the physical world around me. The more I progressed in my high-school studies, the more I found my passion for technology, problem solving and understanding the role that humans play within the environment. Studying both Geographic Information Science and Environmental Science at the University of Auckland perfectly blended these ideas together.*”

*“I love that the programme is heavily focused on teaching you practical skills and giving you the opportunity to communicate your learning through various modes, not just traditional assignment styles. My studies have made me feel more confident about pursuing jobs after graduation, with a more solid foundation of understanding topics and software. I also appreciate the range of topics we cover throughout the degree, as it really gives you the chance to pinpoint the areas you are most interested in.*”

*“I’ve had great connections with with staff and fellow students. I’ve always been able to get in contact with tutors and lecturers, and I’ve received a bunch of support. They’ve really helped me to achieve the best I can.*”

*“The science faculty also organises many extracurricular activities, such as hackathons, quiz nights, clubs and career events. These are all super useful for making connections, friends, and for exploring your interests.”*

## Taryn Smith

**Student: Bachelor of Science in Geographic Information Science and Environmental Science.**

Read Taryn’s full story at:  
[auckland.ac.nz/science/taryn-smith](https://auckland.ac.nz/science/taryn-smith)





# How to apply

So, you've made your decision about what you want to study, and now it's time to apply. What do you need to do? It's a two-step process to apply for and enrol in your chosen programme.

## First you need to apply

Complete the Application for Admission online. If you haven't already, you'll be asked to sign up for a new account. It's easy, and soon your application will be underway.

**[auckland.ac.nz/apply](https://auckland.ac.nz/apply)**

Next you'll receive an acknowledgement email asking you to provide supporting documents (and in some cases to complete other requirements\*) before your application can be assessed.

Remember, you can apply for more than one programme. You can check your application status online at any time.

Your final offer of a place depends on two things: your admission to the University (which for school leavers may depend on your final school results) and your assessment by the relevant faculty.

If your application is successful, we'll email you an offer – normally from mid-January.\*\* To accept or decline this offer, log onto **[auckland.ac.nz/apply](https://auckland.ac.nz/apply)**

Some late applications may be accepted after 2024 school results are available. It is advisable, however, to apply for all programmes that you might wish to pursue before the closing date. Multiple applications are acceptable, and all applications received by the closing date will be considered when 2024 academic results are available. Late applications will be considered if places are available.

## Next you need to enrol

If you need some help with the enrolment process, take an online tutorial.

**[auckland.ac.nz/enrolment](https://auckland.ac.nz/enrolment)**

Find out more about our subjects and courses online.

**[auckland.ac.nz/programmes](https://auckland.ac.nz/programmes)**

You can also visit the Student Hubs website.

**[Update to auckland.ac.nz/student-hubs](https://auckland.ac.nz/student-hubs)**

Check out Mānawa Mai Open Day.

**[manawa-mai.ac.nz](https://manawa-mai.ac.nz)**

If you are beginning tertiary study for the first time, you may be eligible for one year of fees-free study. Check our website for more information.

**[auckland.ac.nz/feesfreefirstyear](https://auckland.ac.nz/feesfreefirstyear)**

We recommend that you enrol in your courses as soon as you've accepted your offer of a place. Remember to build your timetable by selecting courses and placing these into your enrolment cart. Validate these to ensure you have no timetable clashes. If there is a timetable clash, select another time, or you may need to select another course. If everything is ok, enrol in your courses.

Stuck? At any point in the process you can find answers to your questions online at

**[askauckland.ac.nz](https://askauckland.ac.nz)**

Phone during business hours or email us:

**0800 61 62 63**

**[studentinfo@auckland.ac.nz](mailto:studentinfo@auckland.ac.nz)**

**New Zealand's  
largest faculty  
of Science\*\*\***

**Find out more  
[auckland.ac.nz/science](https://auckland.ac.nz/science)**

*\*For some programmes, you may be required to submit supplementary information (eg, a portfolio of work, referee reports, an online form) or to attend an interview/audition.*

*\*\*If you are not offered a place in the programme(s) of your choice, you will receive an email outlining alternative options.*

*\*\*\*[science.auckland.ac.nz/excellence](https://science.auckland.ac.nz/excellence)*







For personal assistance please visit us at your local Student Hub, where students and whānau are welcome to talk with our expert advisers:

**City Campus:**  
General Library, Building 109  
5 Alfred Street, Auckland

**Grafton Campus:**  
Philson Library, Building 503  
Level 1, 85 Park Rd, Grafton  
(Entry via the Atrium)

**South Auckland Campus**  
Te Papa Ako o Tai Tonga:  
6 Osterley Way, Manukau

**Whangārei Campus**  
Te Papa Ako o Tai Tokerau: L Block  
13 Alexander Street, Whangārei

Email us: [studentinfo@auckland.ac.nz](mailto:studentinfo@auckland.ac.nz)  
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International: +64 9 373 7513  
Web: [auckland.ac.nz](http://auckland.ac.nz)